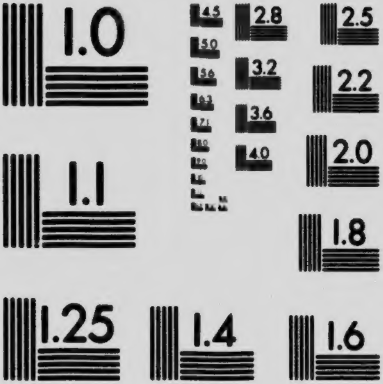

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UNIVERSITY OF TORONTO STUDIES

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No. 87: SOME ESTERS OF ARSENIOUS ACID, PART II: RESORCINYL ARSENITE, BY W. R. LANG AND J. O. WOODHOUSE

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SOME ESTERS OF ARSENIOUS ACID. PART II RESORCINYL ARSENITE.

BY

WILLIAM ROBERT LANG

AND

JOHN OBINS WOODHOUSE

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180. "Some esters of arsenious acid. Part II. Resorcinyl arsenite." By William Robert Lang and John Obins Woodhouse.

Continuing the experiments described in a previous communication (Lang, MacKey, and Gortner, *Trans.*, 1908, **93**, 1364), but using one of the dihydric phenols, quantities by weight of resorcinol and of arsenious oxide corresponding with the equation below were heated to the melting point of the former in a distilling flask, connected through a weighed flask with an exhaust pump. The temperature was kept constant, and the arsenic slowly dissolved in the melted resorcinol, yielding an amber-coloured fluid becoming darker as the heating progressed, the pressure being 60 mm. The water evolved in the reaction, $3C_6H_4(OH)_2 + As_2O_3 = (C_6H_4O_2)_3As_2 + 3H_2O$, collected in the trap and was weighed as a check, due precautions being taken to prevent loss. After heating for fifty-five minutes the mixture was allowed to cool, broken up, and extracted with hot toluene, which removed from it some resorcinol. The residue was dissolved in dry ethyl alcohol, in which these esters are soluble, when an immediate precipitate of arsenious oxide was produced. Analysis of the substance obtained on evaporation in a vacuum of the alcoholic extract proved it to contain from 5 to 6 per cent. of arsenious oxide in excess of that required by the formula $(C_6H_4O_2)_3As_2$, showing that arsenious oxide dissolved in the ester formed. To prevent this, an excess of resorcinol was employed, namely, 100 grams, and 50 grams of arsenious oxide heated with it as before, the proportions of the former to the latter being, according to the equation supposed to represent the reaction, 100 to 60; in this way an amount of resorcinol corresponding with 10 grams of arsenious oxide would, of necessity, remain unacted on and be readily extracted from the ester by a specific solvent. After an hour's heating, the solidified mass was broken up and digested in a reflux condenser with dry toluene, which extracted a considerable proportion of resorcinol. This treatment was repeated until no more resorcinol could be obtained on evaporation of the solvent. The resorcinol-free mass was analysed as follows. About 1 gram was treated with water, which caused its immediate decomposition, the solution acidified with hydrochloric acid, and the arsenic precipitated as sulphide, dried on a tared filter, and weighed. The results of numerous analyses, which closely corresponded, gave :

Found, $As = 31{\cdot}9$. $C_{18}H_{12}O_6As_2$ requires $As = 31{\cdot}65$ per cent.

Resorcinyl arsenite closely resembles hardened gelatin in appearance, melts at 24°, and has a specific gravity of 1·9. It is soluble in methyl, ethyl, propyl, and butyl alcohols, but insoluble in ether, chloroform, benzene, or toluene. Water, however, immediately decomposes it.

The same experiments were tried with quinol, but, so far, without success.

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